

## SEQUENCE LISTING

<110> PROUDFOOT, AMANDA  
KOSCO-VILBOIS, MARIE  
WELLS, TIMOTHY

<120> CHEMOKINES MUTANTS HAVING IMPROVED ORAL BIOAVAILABILITY

<130> ARS-103

<140> US 10/510,014

<141> 2004-09-30

<150> PCT/EP03/50084

<151> 2003-03-31

<150> EP 02100339.7

<151> 2002-04-04

<160> 15

<170> PatentIn version 3.1

<210> 1

<211> 91

<212> PRT

<213> Escherichia coli

<220>

<221> mat\_peptide

<222> (1)..(68)

<223> carboxy terminal amino acid

<400> 1

Met Lys Val Ser Ala Ala Ala Leu Ala Val Ile Leu Ile Ala Thr Ala  
-20 -15 -10

Leu Cys Ala Pro Ala Ser Ala Ser Pro Tyr Ser Ser Asp Thr Thr Pro  
-5 -1 1 5

Cys Cys Phe Ala Tyr Ile Ala Arg Pro Leu Pro Arg Ala His Ile Lys  
10 15 20 25

Glu Tyr Phe Tyr Thr Ser Gly Lys Cys Ser Asn Pro Ala Val Val Phe  
30 35 40

Val Thr Ala Ala Asn Ala Gln Val Cys Ala Asn Pro Glu Lys Lys Trp  
45 50 55

Val Arg Glu Tyr Ile Asn Ser Leu Glu Met Ser  
60 65

<210> 2  
 <211> 66  
 <212> PRT  
 <213> Escherichia coli

<400> 2

Tyr Ser Ser Asp Thr Thr Pro Cys Cys Phe Ala Tyr Ile Ala Arg Pro  
 1 5 10 15  
 Leu Pro Arg Ala His Ile Lys Glu Tyr Phe Tyr Thr Ser Gly Lys Cys  
 20 25 30  
 Ser Asn Pro Ala Val Val Phe Val Thr Ala Ala Asn Ala Gln Val Cys  
 35 40 45  
 Ala Asn Pro Glu Lys Lys Trp Val Arg Glu Tyr Ile Asn Ser Leu Glu  
 50 55 60  
 Met Ser  
 65

<210> 3  
 <211> 92  
 <212> PRT  
 <213> Escherichia coli

<220>  
 <221> mat\_peptide  
 <222> (1)..(69)  
 <223> carboxy terminal amino acid

<400> 3

Met Lys Val Ser Ala Ala Ala Leu Ala Val Ile Leu Ile Ala Thr Ala  
 -20 -15 -10  
 Leu Cys Ala Pro Ala Ser Ala Met Ser Pro Tyr Ser Ser Asp Thr Thr  
 -5 -1 1 5  
 Pro Cys Cys Phe Ala Tyr Ile Ala Arg Pro Leu Pro Arg Ala His Ile  
 10 15 20 25  
 Lys Glu Tyr Phe Tyr Thr Ser Gly Lys Cys Ser Asn Pro Ala Val Val  
 30 35 40  
 Phe Val Thr Ala Ala Asn Ala Gln Val Cys Ala Asn Pro Glu Lys Lys  
 45 50 55  
 Trp Val Arg Glu Tyr Ile Asn Ser Leu Glu Met Ser  
 60 65

<210> 4  
 <211> 91  
 <212> PRT  
 <213> Escherichia Coli

<220>  
 <221> mat\_peptide  
 <222> (1)..(68)  
 <223> carboxy terminal amino acid

<400> 4

Met Lys Val Ser Ala Ala Ala Leu Ala Val Ile Leu Ile Ala Thr Ala  
                   -20                                  -15                                  -10

Leu Cys Ala Pro Ala Ser Ala Ser Pro Tyr Ser Ser Asp Thr Thr Pro  
                   -5                                  -1  1                                  5

Cys Cys Phe Ala Tyr Ile Ala Arg Pro Leu Pro Arg Ala His Ile Lys  
 10                                  15                                  20                                  25

Glu Tyr Phe Tyr Thr Ser Asn Lys Cys Ser Asn Pro Ala Val Val Phe  
                                   30                                  35                                  40

Val Thr Ala Ala Asn Ala Gln Val Cys Ala Asn Pro Glu Lys Lys Trp  
                                   45                                  50                                  55

Val Arg Glu Tyr Ile Asn Ser Leu Glu Met Ser  
                   60                                  65

<210> 5  
 <211> 68  
 <212> PRT  
 <213> Escherichia coli

<400> 5

Ser Pro Tyr Ser Ser Asp Thr Thr Pro Cys Cys Phe Ala Tyr Ile Ala  
 1                                  5                                  10                                  15

Arg Pro Leu Pro Arg Ala His Ile Lys Glu Tyr Phe Tyr Thr Ser Gly  
                   20                                  25                                  30

Lys Cys Ser Asn Pro Ala Val Val Phe Val Thr Arg Glu Asn Arg Gln  
                   35                                  40                                  45

Val Cys Ala Asn Pro Glu Lys Lys Trp Val Arg Glu Tyr Ile Asn Ser  
                   50                                  55                                  60

Leu Glu Met Ser  
 65

<400> 6

Trp Val Arg Glu Tyr Ile Asn Ser Leu Glu Met Ser  
60 65

<400> 7

Phe Tyr Thr Ser Asn Lys Cys Ser Asn Pro Ala Val Val Phe Val Thr  
30 35 40

Arg Lys Asn Arg Gln Val Cys Ala Asn Pro Glu Lys Lys Trp Val Arg  
                   45                  50                  55

Glu Tyr Ile Asn Ser Leu Glu Met Ser  
           60                  65

<210> 8  
 <211> 70  
 <212> PRT  
 <213> Escherichia coli

<400> 8

Ala Ser Leu Ala Ala Asp Thr Pro Thr Ala Cys Cys Phe Ser Tyr Thr  
 1                  5                  10                  15

Ser Ala Gln Ile Pro Gln Asn Phe Ile Ala Asp Tyr Phe Glu Thr Ser  
           20                  25                  30

Ser Gln Cys Ser Lys Pro Gly Val Ile Phe Leu Thr Lys Ala Ser Ala  
           35                  40                  45

Gln Val Cys Ala Asp Pro Ser Glu Glu Trp Val Gln Lys Tyr Val Ser  
           50                  55                  60

Asp Leu Glu Leu Ser Ala  
 65                  70

<210> 9  
 <211> 69  
 <212> PRT  
 <213> Escherichia coli

<400> 9

Ala Pro Met Gly Ser Asp Pro Pro Thr Ala Cys Cys Phe Ser Tyr Thr  
 1                  5                  10                  15

Ala Arg Lys Leu Pro Arg Asn Phe Val Val Asp Tyr Tyr Glu Thr Ser  
           20                  25                  30

Ser Leu Cys Ser Gln Pro Ala Val Val Phe Gln Thr Ala Ala Ser Ala  
           35                  40                  45

Gln Val Cys Ala Asp Pro Ser Glu Ser Trp Val Gln Glu Tyr Val Tyr  
           50                  55                  60

Asp Leu Glu Leu Asn  
 65

<210> 10  
 <211> 91

<212> PRT  
 <213> Escherichia coli

<220>  
 <221> SIGNAL  
 <222> (1)..(23)  
 <223> carboxy terminal amino acid

<400> 10

Met Lys Val Ser Ala Ala Ala Leu Ala Val Ile Leu Ile Ala Thr Ala  
 1 5 10 15

Leu Cys Ala Pro Ala Ser Ala Ser Pro Tyr Ser Ser Asp Thr Thr Pro  
 20 25 30

Cys Cys Phe Ala Tyr Ile Ala Arg Pro Leu Pro Arg Ala His Ile Lys  
 35 40 45

Glu Tyr Phe Tyr Thr Ser Gly Lys Cys Ser Asn Pro Ala Val Val Phe  
 50 55 60

Val Thr Arg Lys Asn Arg Gln Val Cys Ala Asn Pro Glu Lys Lys Trp  
 65 70 75 80

Val Arg Glu Tyr Ile Asn Ser Leu Glu Met Ser  
 85 90

<210> 11  
 <211> 92  
 <212> PRT  
 <213> Escherichia coli

<220>  
 <221> mat\_peptide  
 <222> (1)..(69)  
 <223> carboxy terminal amino acid

<400> 11

Met Lys Val Ser Ala Ala Ala Leu Ala Val Ile Leu Ile Ala Thr Ala  
 -20 -15 -10

Leu Cys Ala Pro Ala Ser Ala Met Ser Pro Tyr Ser Ser Asp Thr Thr  
 -5 -1 1 5

Pro Cys Cys Phe Ala Tyr Ile Ala Arg Pro Leu Pro Arg Ala His Ile  
 10 15 20 25

Lys Glu Tyr Phe Tyr Thr Ser Gly Lys Cys Ser Asn Pro Ala Val Val  
 30 35 40

Phe Val Thr Arg Lys Asn Lys Gln Val Cys Ala Asn Pro Glu Lys Lys  
 45 50 55

Trp Val Arg Glu Tyr Ile Asn Ser Leu Glu Met Ser  
           60                                65

<210> 12  
 <211> 89  
 <212> PRT  
 <213> Pichia Pastoris

<220>  
 <221> mat\_peptide  
 <222> (1)..(66)  
 <223> carboxy terminal amino acid

<400> 12

Met Lys Val Ser Ala Ala Ala Leu Ala Val Ile Leu Ile Ala Thr Ala  
           -20                                -15                                -10

Leu Cys Ala Pro Ala Ser Ala Tyr Ser Ser Asp Thr Thr Pro Cys Cys  
           -5                                -1 1                                5

Phe Ala Tyr Ile Ala Arg Pro Leu Pro Arg Ala His Ile Lys Glu Tyr  
 10                                15                                20                                25

Phe Tyr Thr Ser Gly Lys Cys Ser Asn Pro Ala Val Val Phe Val Thr  
                                 30                                35                                40

Arg Lys Asn Arg Gln Val Cys Ala Asn Pro Glu Lys Lys Trp Val Arg  
                                 45                                50                                55

Glu Tyr Ile Asn Ser Leu Glu Met Ser  
           60                                65

<210> 13  
 <211> 91  
 <212> PRT  
 <213> Escherichia Coli

<220>  
 <221> mat\_peptide  
 <222> (1)..(68)  
 <223> carboxy terminal amino acid

<400> 13

Met Lys Val Ser Ala Ala Ala Leu Ala Val Ile Leu Ile Ala Thr Ala  
           -20                                -15                                -10

Leu Cys Ala Pro Ala Ser Ala Ser Pro Tyr Ser Ser Asp Thr Thr Pro  
           -5                                -1 1                                5

Cys Cys Phe Ala Tyr Ile Ala Arg Pro Leu Pro Arg Ala His Ile Lys  
 10 15 20 25

Glu Tyr Phe Tyr Thr Ser Asn Lys Cys Ser Asn Pro Ala Val Val Phe  
 30 35 40

Val Thr Arg Lys Asn Arg Gln Val Cys Ala Asn Pro Glu Lys Lys Trp  
 45 50 55

Val Arg Glu Tyr Ile Asn Ser Leu Glu Met Ser  
 60 65

<210> 14  
 <211> 70  
 <212> PRT  
 <213> Escherichia coli

<400> 14

Ala Ser Leu Ala Ala Asp Thr Pro Thr Ala Cys Cys Phe Ser Tyr Thr  
 1 5 10 15

Ser Arg Gln Ile Pro Gln Asn Phe Ile Ala Asp Tyr Phe Glu Thr Ser  
 20 25 30

Ser Gln Cys Ser Lys Pro Gly Val Ile Phe Leu Thr Lys Arg Ser Arg  
 35 40 45

Gln Val Cys Ala Asp Pro Ser Glu Glu Trp Val Gln Lys Tyr Val Ser  
 50 55 60

Asp Leu Glu Leu Ser Ala  
 65 70

<210> 15  
 <211> 69  
 <212> PRT  
 <213> Escherichia coli

<400> 15

Ala Pro Met Gly Ser Asp Pro Pro Thr Ala Cys Cys Phe Ser Tyr Thr  
 1 5 10 15

Ala Arg Lys Leu Pro Arg Asn Phe Val Val Asp Tyr Tyr Glu Thr Ser  
 20 25 30

Ser Leu Cys Ser Gln Pro Ala Val Val Phe Gln Thr Lys Arg Ser Lys  
 35 40 45

Gln Val Cys Ala Asp Pro Ser Glu Ser Trp Val Gln Glu Tyr Val Tyr  
 50 55 60



Asp Leu Glu Leu Asn  
65